On Track: A Database For Evaluating the Outpatient Clinical Experience of Internal Medicine Residency Training

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Abstract

Residents in internal medicine training programs spend an increasing amount of time in the outpatient setting, creating the potential for substantial variability in educational experiences among residents. We developed a data management system (On Track) that combines information on clinical experiences collected from an electronic medical record (EMR) and handheld personal data assistants (PDA). This information is translated into easily interpretable graphics and reports that provide insight into the overall residency curriculum as well as the experiences of individual residents.

Background

Internal medicine residency training has been shifting from the inpatient setting to outpatient clinics. The diversity of ambulatory practice settings can lead to significant variation in educational experiences between residents due to differences in precepting methods, patient populations, and patient volume. Such variation might explain the perception of some residency graduates that they are unprepared to manage common outpatient conditions[1]. Residents and their program directors are thus faced with the challenge of monitoring a diverse training experience and making sure they are "On Track".

System Design

We developed a comprehensive data management system to record the breadth of educational experiences for our primary care residents. Clinical encounters in the residents' primary care continuity clinic are recorded through an EMR in use at all outpatient clinics in our residency program. For each resident, structured downloads from the EMR are used to capture all outpatient encounters and associated ICD-9-CM diagnostic codes. Diagnostic codes are automatically assigned to clinical categories used in curriculum development, such as cardiology or orthopedics. Since the EMR does not allow for tracking of subspecialty precepting sessions and clinical lectures, we also developed a PDA-based application to allow residents to record these activities. Using this application, residents categorize patient encounters while they are precepted by subspecialists. In addition, residents record the topics of all outpatient lectures attended.

The combined data from the EMR abstraction and the handheld databases is electronically sent to the program coordinator on a monthly basis for each resident. The databases are merged to generate reports reflecting the number and variety of clinical experiences for an individual resident and for the overall primary care residency program.

Results

Data from the first academic year of implementation (2001-2002) of this system have provided valuable insight into the outpatient curriculum for our residency program. 2284 patient encounters were downloaded from the EMR for 12 residents over a one year period. The most common clinical encounters were in the categories of health maintenance (24%), infectious disease (13%), orthopedics (12%), and cardiology (10%). Significant variations among residents were noted both in terms of age and gender of patients seen in continuity clinic. 827 clinical experiences were recorded by 8 residents using the handheld PDA system. These data revealed that fields lacking in continuity clinic experiences such as rheumatology were well compensated for by subspecialty sessions and lectures. Though there was a desirable distribution of clinical experiences for the overall program, significant variability between residents was identified. This information has allowed for targeted interventions to improve the balance of educational experiences for our residents, including scheduling of additional subspecialty precepting sessions or lectures.

Conclusions

On Track is a feasible model system for assessing residency educational experiences and developing targeted curricular changes.

References

1. Wiest FC, Ferris TG, Gokhale M, Campbell EG, Weissman JS, Blumenthal D. Preparedness of internal medicine and family practice residents for treating common conditions. JAMA 2002; 288: 2609-14.